CLAIMS

1. A method of transmitting data within a distributed data processing system having a plurality of nodes interconnected via a data channel, wherein the data processing system has a data transmission cycle subdivided into a plurality of transmission periods, each period able to support the transmission of a plurality of data transmission events, and in which a priority is associated with each transmission event, the priority being determined by the scheduled transmission time of the transmission event.

2. A method as claimed in claim 1, in which each node is allocated at least one transmission event in the transmission cycle.

3. A method as claimed in claim 1, wherein since priorities are assigned on the basis of scheduled transmission time, a delayed transmission takes priority over all subsequently scheduled transmissions.

4. A method as claimed in claim 1, in which a synchronisation signal is transmitted by one of the nodes and is defined as the most significant message within the transmission scheme.

5. A method as claimed in claim 4, in which the synchronisation signal is transmitted first in any data transmission cycle.

6. A method as claimed in claim 1, in which any nodes expecting to receive a specific item of data scheduled for transmission in a Nth transmission period checks for the data in a (N+2)th transmission period.

7. A method as claimed in claim 1, in which the final two transmission periods of the transmission cycle have fewer scheduled transmissions allocated to them, such that there is sufficient spare transmission capacity to transmit any delayed transmissions and the scheduled ones within these transmission periods.

8. A method as claimed in claim 1, in which messages transmitted towards the end of the transmission cycle are of lower importance than messages scheduled for earlier transmission.

9. A method as claimed in claim 4, in which node receiving the synchronisation signal adjusts on an internal clock to maintain synchronisation.

10. A method as claimed in claim 1, in which each node is arranged to attempt to transmit data when the scheduled time for the transmission of the data is reached.

11. A method as claimed in claim 1, in which each node includes a communications interface with bus arbitration therein such that bus contentions are resolved.

12. A method as claimed in claim 1, in which none of the priorities associated with the messages differ by an exact power of 2, such that corruption of a single bit in the priority identifier results in an invalid identifier.

13. A method of transmitting data within a distributed data processing system having a plurality of nodes connected via a data pathway, wherein the nodes are substantially synchronised to a reference and at least one node attempts to transmit a predetermined item of data at a scheduled transmission time, as measured locally within a node, following the reference, and wherein each item of data is associated with a unique priority identifier, with the priority identifier indicating that the transmission priority of a message reduces as the scheduled transmission time of the message increases, and wherein nodes expecting to receive a particular message check for its receipt within a receipt window following the scheduled transmission of the message.

14. A distributed data processing system having a plurality of nodes interconnected via a data channel, wherein the data processing system has a data transmission cycle subdivided into a plurality of transmission periods, each period able to support the transmission of a plurality of transmission events, and at least one node is allocated at least one transmission event in at least one of the transmission periods, and a

priority is associated with each transmission event, the priority being determined by the scheduled transmission time of the transmission event.

15. A distributed data processing system as claimed in claim 14, in which each node transmits its data when the scheduled transmission time for the data, as determined by a timer within the node, arrives; and each node further includes a bus interface which resolves bus contentions based on message priority.

16. A distributed data processing system as claimed in claim 14, in which a delayed transmission takes precedence over all subsequently scheduled transmission events within a transmission cycle.

17. A distributed data processing system as claimed in claim 14, in which one of the nodes is responsible for periodically generating a timing reference signal, to which other nodes are synchronised.

18. A data transmission system having a plurality of nodes connected via a data pathway, wherein the nodes are substantially synchronised to a reference and at least one node attempts to transmit a predetermined item of data at a scheduled transmission time as measured locally within a node following the reference; and wherein each item of data is associated with a unique priority identifier, with the priority identifier indicating that the priority of a message reduces as the scheduled transmission time of a message within the transmission cycle increases.